

## Federal Bridge Replacement Scoring (Modified BIG Score)

70 Points Maximum

1. Bridge Condition (50 points maximum)

- a. **Posted** (27 points maximum) – Refers to a bridge that is signed for less than legal loads. This designation will be based on data in National Bridge Inventory (NBI) item 70. Points will be awarded in accordance with Table VI-1.

Table VI-1

Bridge Inventory Code	Relationship of Operating Rating to Maximum Legal Load	Ranking Points
5	NO POSTING REQUIRED	0
4	0.1 TO 9.9% BELOW	6
3	10.0 TO 19.9% BELOW	12
2	20.0 TO 29.9% BELOW	18
1	30.0 TO 39.9% BELOW	24
0	> 39.9% BELOW	27

- b. **Substructure Condition** (6 points maximum) – Condition rating of the part of the structure that supports the superstructure (piers, bents, abutments). This rating will be based on the data in the NBI item 60. Points will be awarded in accordance with Table VI-2.
- c. **Superstructure Condition** (6 points maximum) – Condition rating of the part of the structure that supports traffic (deck, slab, girders). This rating will be based on the data in the NBI item 59. Points will be awarded in accordance with

Table VI-2

NBI Condition Rating	Ranking Points
>5	0
5	1
4	2
3	3
2	4
1	5
0	6

- d. **Culvert Condition** (12 points maximum) – Condition rating will be based on the data in National Bridge Inventory item 62. Points will be awarded at two times the value as shown in Table VI-2.
- e. **Fracture Critical** (5 points or zero points) – Fracture-critical members or member components (FCMs) are steel tension members or steel tension components of

members whose failure would be expected to result in a partial or full collapse of the bridge. This designation is based on data in the NBI. Five points will be awarded if the structure is determined to be fracture critical.

- f. **Scour Critical** (5 points or zero points) – A bridge with a foundation element that has been determined to be unstable for the observed or evaluated scour condition. This designation is based on NBI appraisal item 113 (Scour) having a value of 3 or less or having unknown foundations. Five points will be awarded if the structure is determined to be scour critical.
  - g. **Sufficiency Rating** (1-point maximum) – A method of evaluating bridge data to obtain a numeric value, which is indicative of a bridge's sufficiency to remain in service. This number is based on data in the NBI. A fractional point will be awarded based on the score derived from using the following formula:  $(100 - \text{Sufficiency Rating}) / 100$ .
2. **User Impact** (20 points maximum) - User Impact will be a variable that measures impact on users of the bridge and will be calculated by multiplying the value of average daily traffic (ADT) on the bridge by the Detour Length. This item will be based on the data in NBI Item 29 for ADT and the NBI length in miles for the Detour Length. The points will be assigned based on the following formulas with the maximum value for user impact capped at 20 points:

For On-System (Public Roads, on a Federal-aid System. This designation will be based on data in NBI item 26.):

$$\text{User Impact (On-System)} = \text{ADT} \times \text{Detour Length (miles)} / 350$$

For Off-System (Public Roads, other than those on a Federal-aid System):

$$\text{User Impact (Off-System)} = \text{ADT} \times \text{Detour Length (miles)} / 100$$